

[Title of the Document] Claims

1. A multilayer film, comprising a structure where five or more layers made of thermoplastic resin A (layers A) and five or more layers made of thermoplastic resin B (layers B) having a basic skeleton that is the same as that of thermoplastic resin A are alternately layered on top of each other, characterized in that at least one reflection peak is provided and the difference between the reflectance of the reflection peak before heating and after heating for 30 minutes in an atmosphere of 150°C is no greater than 15%.

2. The multilayer film according to Claim 1, characterized in that the total number of layers A and layers B is no less than 250 and the squared value of the correlation coefficient when each order number of layers B from one of the surface layers of the film and the thickness of the layer are linearly approximated is no less than 0.4 and no greater than 1.

3. The multilayer film according to Claim 1, characterized in that the total number of layers A and layers B is no less than 250 and the squared value of the correlation coefficient when each order number of layers B from one of the surface layers of the film and the thickness of the layer are approximated in a quadratic polynomial is no less than 0.4 and no greater than 1.

4. The multilayer film according to any of Claims 1 to 3, characterized in that the total number of layers A and layers

B is no less than 640.

5. The multilayer film according to any of Claims 1 to 4, characterized in that the layer unevenness M in layers B which is found in the following form is no greater than 20%:

$$M = s/a \times 100$$

where M is the layer unevenness in layers B (%), s is the standard deviation for layers B (nm) and a is the average thickness of layers B (nm).

6. The multilayer film according to any of Claims 1 to 5, characterized in that the thickness (nm) of at least one layer from among the layers A that form the film is within a range from XA1 to XA2 shown in the following formula and the number of layers A which are included in this range is no less than  $50 \times (XA2/XA1)^2$  when the ratio in the thickness of a layer A to an adjacent layer B (thickness of layer A/thickness of layer B) is Z, the lowest wavelength end is  $\lambda_1$  and the highest wavelength end is  $\lambda_2$  in the reflection peak on the highest wavelength side where the reflectance is no less than 30%:

$$XA1 = \lambda_1 / (3.2 \times (1 + Z)) \text{ and } XA2 = \lambda_2 / (3.2 \times (1 + Z))$$

7. The multilayer film according to any of Claims 1 to 6, characterized by having a reflection peak of which the reflectance is no less than 80%.

8. The multilayer film according to any of Claims 1 to 7, characterized in that the thicknesses of layers B (nm) at least include a thickness in the range from XB1 to XB2 shown in the

following formula and the number of layers B which are included in this range is no less than  $50 \times (XB2/XB1)^2$ :

$$XB1 = Z \times XA1$$

$$XB2 = Z \times XA2$$

9. The multilayer film according to any of Claims 1 to 8, characterized by including a portion where the thicknesses of layers A and/or the thicknesses of layers B gradually change from XA1 to XA2 and/or gradually change from XB1 to XB2 from the surface side of the film toward the opposite surface side.

10. The multilayer film according to any of Claims 1 to 9, characterized in that the thicknesses of layers A and/or the thicknesses of layers B change from the surface side of the film toward the opposite surface side in such a manner that the thickness is essentially smaller on the surface side and the thickness is greater close to the center portion in the cross section of the film.

11. The multilayer film according to any of Claims 1 to 9, characterized in that the thicknesses of layers A and/or the thicknesses of layers B change from the surface side of the film toward the opposite surface side in such a manner that the thickness is essentially greater on the surface side and the thickness is smaller close to the center portion in the cross section of the film.

12. The multilayer film according to any of Claims 1 to 11, characterized in that thickness ratio Z of a layer A to an adjacent

layer B is no less than 0.8 and no greater than 5.

13. The multilayer film according to any of Claims 1 to 12, characterized by having at least one high order reflective band of which the reflectance is no greater than 30%.

14. The multilayer film according to any of Claims 1 to 13, characterized in that the order of the high order reflective band of which the reflectance is no greater than 30% is secondary or lower and quaternary or higher.

15. The multilayer film according to any of Claims 1 to 14, characterized in that the difference in reflectance between the peaks of reflection in different locations in the direction of the width of the film is within  $\pm 10\%$ .

16. The multilayer film according to any of Claims 1 to 15, characterized in that the difference in reflectance between secondary reflective bands in different locations in the direction of the width of the film is within  $\pm 5\%$ .

17. The multilayer film according to any of Claims 1 to 16, characterized in that the thermoplastic resin is polyester and either thermoplastic resin A or thermoplastic resin B includes a polyester with which at least aliphatic dicarboxylic acid or a derivative thereof is copolymerized.

18. The multilayer film according to any of Claims 1 to 17, characterized in that thermoplastic resin A is made of polyethylene terephthalate and thermoplastic resin B is made of a polyester with which at least cyclohexane dimethanol is

copolymerized.

19. The multilayer film according to any of Claims 1 to 18, characterized in that the peak of heat emission is no less than 0 J/g and no greater than 5 J/g in DSC measurement (first heating).

20. The multilayer film according to any of Claims 1 to 19, characterized by having a layer of which the thickness is no less than 3  $\mu\text{m}$  and of which the main component is polyethylene terephthalate on at least one side.

21. The multilayer film according to any of Claims 1 to 20, characterized by having a layer made of an adhesive layer of which the thickness is no less than 30 nm and no greater than 300 nm, and a polyethylene terephthalate layer of which the thickness is no less than 3  $\mu\text{m}$  on at least one side.

22. The multilayer film according to any of Claims 1 to 21, characterized in that layers other than the outermost layers substantially do not include particles of which the average particle diameter is no less than 20 nm and no greater than 20  $\mu\text{m}$ .

23. The multilayer film according to any of Claims 1 to 22, characterized in that the number of scratches of which the width is no less than 20  $\mu\text{m}$  is no greater than 20/ $\text{m}^2$ .

24. The multilayer film according to any of Claims 1 to 17, characterized in that the thickness of the multilayer film periodically varies in the longitudinal direction or direction of the width of the film.

25. The multilayer film according to any of Claims 1 to 24, characterized in that color development in the multilayer film periodically changes within the surface.
26. The multilayer film according to any of Claims 1 to 25, characterized in that one or more peaks of which the intensity is 0.04 to 25 in the wave number of 0.5 to 100000 (1/m) in the spectrum when the fluctuation in the thickness of the film is Fourier analyzed.
27. A decorative film using the multilayer film according to any of Claims 1 to 26.
28. An anti-counterfeit film using the multilayer film according to any of Claims 1 to 26.
29. An optical filter using the multilayer film according to any of Claims 1 to 23.
30. A hologram using the multilayer film according to any of Claims 1 to 26.
31. A filter for PDP using the multilayer film according to any of Claims 1 to 23.
32. A reflector for a solar battery, characterized by being made of the multilayer film according to any of Claims 1 to 23.
33. The reflector for a solar battery according to Claim 32, characterized by having a reflective band of which the reflectance is no less than 80% in a range from 300 nm to 2500 nm.
34. The reflector for a solar battery according to Claim 32

or 33, characterized in that the vapor transmissivity is no greater than  $2 \text{ g}/(\text{m}^2 \cdot \text{day})$ .

35. The reflector for a solar battery according to any of Claims 32 to 34, characterized in that resistance to hydrolysis is no less than 1000 hours at  $85^\circ\text{C}$  with a humidity of 85%.

36. The reflector for a solar battery according to any of Claims 32 to 35, characterized by being made of a multilayer film of which the strength against tearing is no less than 6 N/mm in the longitudinal and the direction of the width.

37. The reflector for a solar battery according to any of Claims 32 to 36, characterized by having an absorption band in a wavelength of no greater than 400 nm.